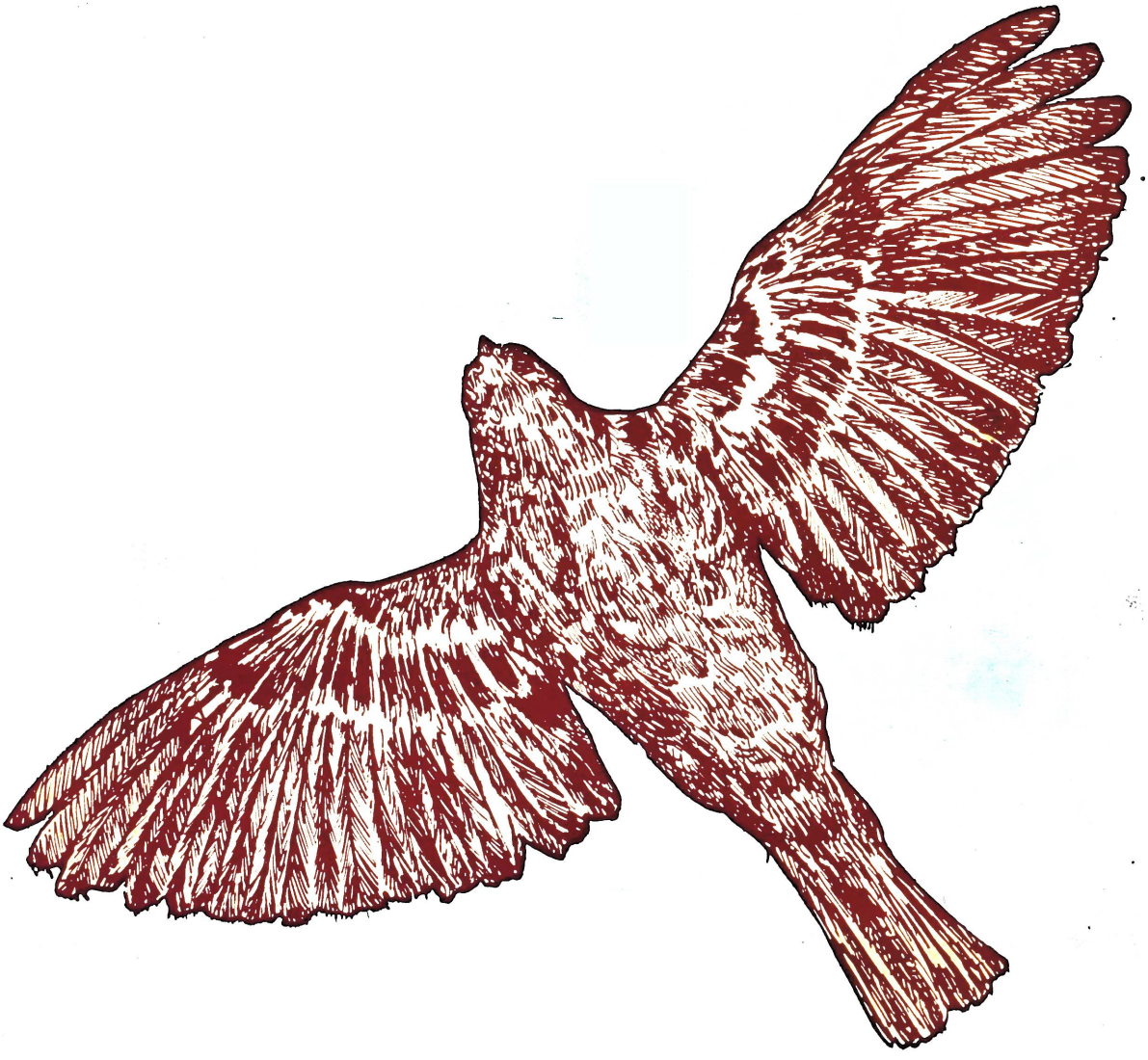
BIRDS and BIRD WATCHING



NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

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AND

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National Council of Educational Research and Training

February 1973
Magha 1894

P. U. 2T.

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Price : Rs. 1.95

PUBLISHED AT THE PUBLICATION UNIT BY M. C. VERMA, SECRETARY, NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING, NIE CAMPUS, SRI AUROBINDO MARG, NEW DELHI-16, AND PRINTED AT NAB A MUDRAN PRIVATE LIMITED, 170A, **ACHARYA PRAFULLA CHANDRA ROAD, CALCUTTA-4.**

Foreword

WATCHING birds has been useful to man in many ways. He has learnt from the birds the art of camouflage for his protection. He was inspired for flying in air again by the birds. The story of improvement of gliders and aeroplanes is closely linked with the study of birds.

Main aim of the Reader *Birds and Bird Watching* is to bring out the specific features about various Indian birds. Dr. R. M. Naik, the author, has taken special care to make the material interesting for the school children by including some attractive photographs besides a number of informative illustrations. Although the glamour of colour in birds has not been provided in the illustrations, yet it is hoped that the interesting material and the curosity arousing photographs would go a long way to motivate the school children to pick up the wonderful hobby of bird watching. The Council is thankful to the author for this.

The Council is also thankful to the Department of Science Education and the Publication Unit for their contributions in this Reader.

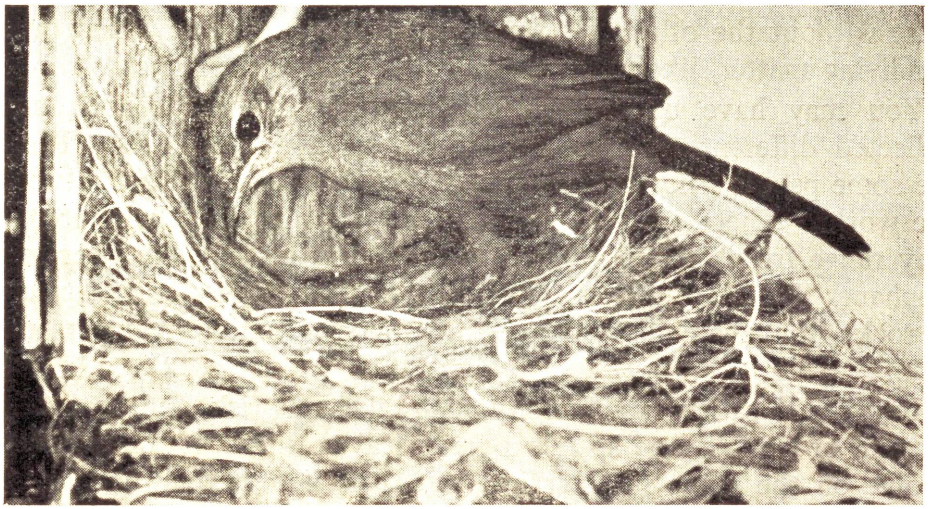
July 12, 1972
New Delhi

S. V C AIYA
Director, NCERT

A ckno w ledge men ts

THE author is grateful to Dr. R. N. Rai, Shri S. Doraiswami, Shri K. J. Khurana and other staff members of the Department of Science Education, National Institute of Education, for their interest and valuable suggestions in preparing this book for publication.

Thanks are also due to Dr. J. C. George and to the editor, *Pavo*—the Indian Journal of Ornithology, for the photographs reproduced on pages 32 and 36 respectively, and to the Department of Zoology, M. S. University of Baroda for the rest of the photographs.



1. *Bird Watching*

CITY DWELLERS and country people alike are aware of the fact that, in addition to human beings, there are many other living species. A variety of plants and animals exist on this earth. We are dependent on them for our existence and comfort, and, as a matter of fact, plants and animals are so inter-dependent that one does not

exist without the other. It would surprise you to know that even non-living matter, like minerals and rocks, affect their lives.

You may have undertaken nature study in your school, and collected different types of leaves, flowers and butterflies. There are some people who study plants, and collect samples from all over the world. There are others who study animals, and their interest may range from minute animals to large animals like the tiger and elephant. There are yet others who study rocks. They collect pieces of rocks from the ends of the earth, at times, even at great personal risk.

In order to satisfy his curiosity, man takes any risk, undergoes any amount of trouble, and spends a great deal of time. If you question people on the range of their interest, their honest reply would be, "because we like to do what we are doing". This is true, because most of these people take to nature study for pleasure, and very few for material gain.

Amongst such people, we find some who watch birds. It is no wonder that bird watching has become popular, as birds are such delightful creatures to watch. Most of them are little fluffy objects, but so conspicuous, that you cannot miss them. If you do not move and frighten them, it is very easy to watch them from a distance.

If you are fortunate and live away from a crowded city, a number of birds would come even into your house. If left alone, they would come fearlessly into the house, and even build their nests and raise their young ones. In case you live in a city, it would give you exercise as well as pleasure to walk up to a park or to the open country to watch birds.

When you begin bird watching, you would soon discover that bird life is very similar to that of any other animal. A bird flies

away from the bush where it rested during the previous night. It searches for food, like worms, weeds and grains; it eats, drinks water and then reposes. During the appropriate time of the year, it raises its fledgelings. Like the other animals, the bird goes through this cycle of activities.

The most important difference between birds and other animals is that birds have feathers, which no other animal has. If you find an animal with feathers, you can be sure that it is a bird. Another peculiar feature of birds is, they lack teeth and have a beak. One more distinguishing feature that all birds have is wings. Of course, insects and bats also have wings, but these animals do not have feathers, so they are not birds.

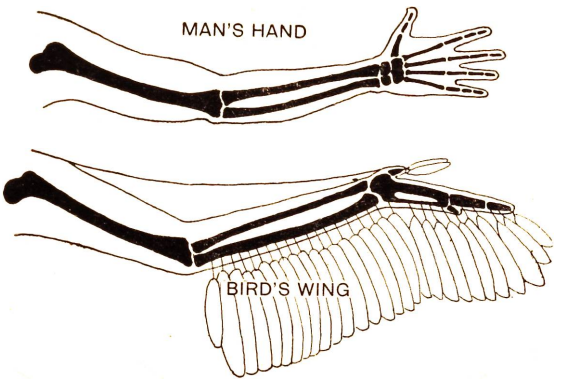
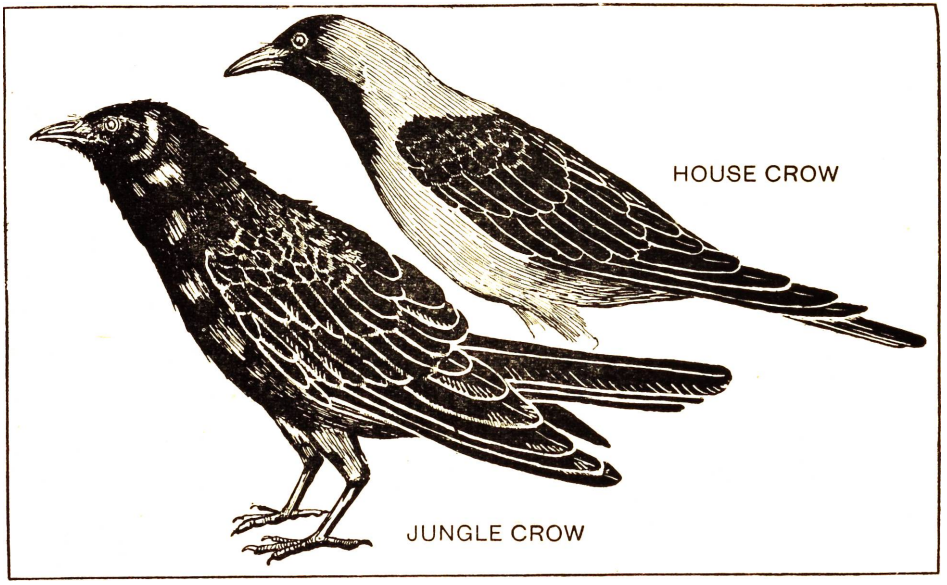


FIG. 1. *Man's hand and bird's wing.*

Do you happen to know what the wings of a bird are? They are really arms, which evolved into wings, so that birds could fly. As a matter of fact, it can be stated that birds fly with their arms. The change or evolution from arms to wings was so drastic, that birds could no more use them for walking. They had to walk on their legs.



2. *Naming Birds*

WHEN WATCHING BIRDS, you must have noticed that there are many different kinds of birds. In India alone there are about 1,300 different kinds of birds. So, to be able to make out one from another,

each kind of bird must have a distinct name. Giving names to the birds is not easy.

Let us see how a crow got its name. Even a child can say that a crow is a crow, but, if we observe carefully, we find, that there are two types of crows. Both of them are blackish in colour, but one is jet black all over the body, whereas the other has a grey neck. Naturally, both these birds cannot be called just 'crow'. The one with the grey neck is called the House Crow, and the other is called the Jungle Crow. Now, not only do these names help us to make out the two different types of crows, but they also tell us something more. They suggest to a certain extent where the particular type of crow is commonly found. The Jungle Crow prefers to live in the open country, though a few may be found in cities. The House Crow is the most common bird in most of our cities and villages.

Though we have only two types of crows, we have many types of mynas, of which seven are quite commonly known; so each one of them is named differently. The Common Myna is closely associated with the human dwelling, and that makes it a common bird. The Blackheaded Myna gets its name from the long, black feathers present on its head. The Bank Myna is so called, because it builds its nest in holes on the banks of rivers and ditches. The Greyheaded Myna has a silvery grey head and back. The myna that lives in hilly regions is called the Hill Myna; this myna is also called the Grackle. I may mention here that the Hill Myna is a favourite as a pet. It can be taught to talk, and so, some people prefer to call it the Talking Myna. The Jungle Myna, though it looks very much like the Common Myna, prefers to live in the jungle, away from human habitation. The Pied Myna has two prominent colours, black and white. A black and white bird is often called pied.

From the foregoing paragraph, it would be clear to you that every kind of bird bears a name. The name helps us to distinguish birds of one kind from those of another kind. Often the name gives us a clue about the bird's appearance or habit, or its place of living.

Often a bird bears the name of the country of its origin, or the country where it lives. The Indian Robin is a name given to our robin. The English Robin, which is quite different from our robin, is the national bird of England. The American Robin, which is altogether a different kind of bird, is found in America. The name of the country, included in each of these names, enables us to distinguish these three birds from one another.

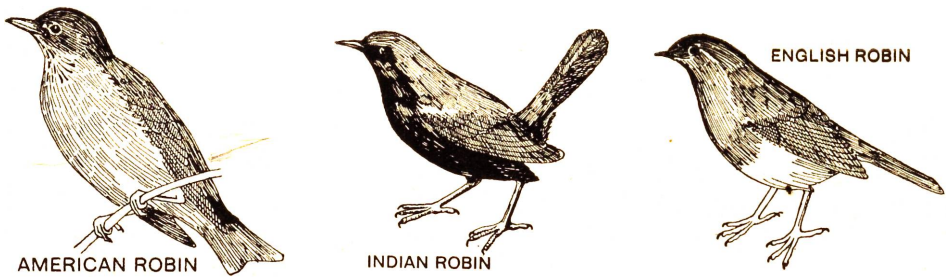
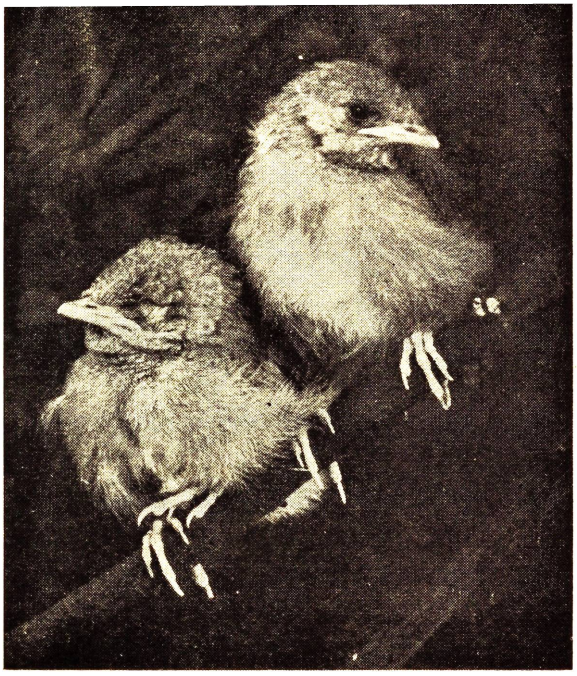


FIG. 2. *Often a bird bears the name of the country of its origin, or the country where it lives.*

It is a common practice not to use the same name for two different kinds of birds. To avoid confusion, this practice is usually followed even for the birds that are never found together in one place.



3. *What Are The Feathers For ?*

A SMALL BIRD, say of the size of a sparrow, has more than a thousand feathers to make for itself, what we may call, a feather coat. Beautiful colours and striking designs of feathers may make a bird very attractive. But, we must remember that these feathers are not mere ornaments; they are a very useful part of a bird's body.

There are some big feathers on the margin of the wings and on the tail; these are used for flying, and are called flight feathers. Without flight feathers, a bird cannot fly.

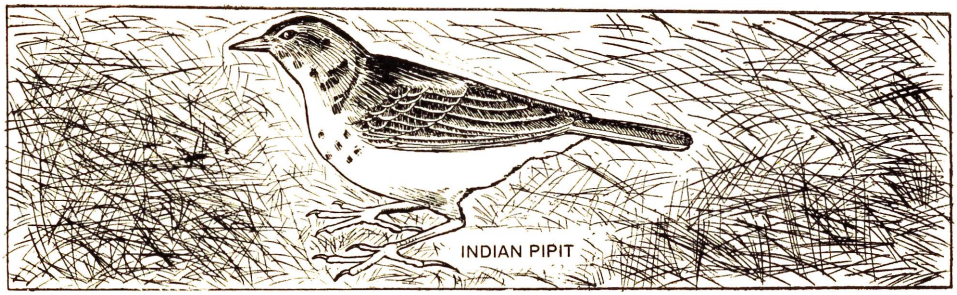
The other feathers are smaller and cover the whole body. These are called body feathers. The body feathers, not only protect the delicate skin from injury, but play a very important part in controlling the temperature of the body.

On winter mornings, you must have seen birds with fluffed out feathers, sitting on the topmost branches of trees, so that they may receive the first rays of the rising sun. When the body feathers are slightly raised or fluffed, some air gets locked in between the feathers. This makes the feather coat a little thicker, and helps to keep the body warm. Young birds find it difficult to keep themselves warm and, therefore, almost all the time we see them with their feathers fluffed up.

In summer, the feather coat would make a bird feel very warm and uncomfortable, and so it raises up the feathers fully. Now the air does not remain locked in between the feathers, but flows freely over the skin and keeps the body cool.

Thus, we see that birds are luckier than us. Whereas we have summer clothes to keep us cool, and winter clothes to keep us warm, a bird has merely to raise or lower its feathers, and it is comfortable, be it summer or winter.

Various moods of a bird are also expressed through raising or lowering of its feathers. The peacock, while displaying before the female, raises its colourful long feathers. The Jungle Babbler, while threatening an intruder, raises its back and chest feathers, but depresses these feathers when preparing to flee from danger.



4. Colouration Of Feathers

HOWEVER much it may please us to see the beautiful colours of birds, we must not forget that the colours of birds are not for our pleasure. This should be easy to realise, when we know that birds were existing on this earth much before man appeared. Again, all birds do not have a pleasing plumage. It is true that some birds, like the peacock, have gorgeous colouring. But, there are also birds, like pipits, that have drab colours. No doubt, a bird's colour must be of some use to the bird itself.

A pipit feeds mostly on the ground in a dry countryside. When it stands motionless, the dull colours of its plumage match so well with the ground that its enemies cannot easily see it. The

green and yellow of a parakeet's feathers help the bird to merge with the green of tree leaves. The bold pattern of bright colours on the feathers of a peacock, as it dances, pleases the peahen. Similarly, when we examine other birds, we see that in the overpopulated world of animals, the colour of the plumage helps a bird to live better and longer.

It is very interesting to know how colour is produced in feathers. Colours like bright red, orange and yellow are produced by pigments called carotenoids. Birds get these pigments from food. The flamingoes have a splash of red colour, but, if they are caught and not given their natural food, which contains plenty of carotenoids, their feathers would ultimately become white. Hence, whether in a zoo or in captivity, the flamingoes are given carrots to eat. The birds get carotenoids from the carrot, and the natural colour of their plumage is maintained.

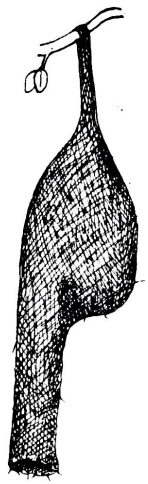
The black colour is produced by a pigment known as melanin. The same pigment is present in our skin and hair.

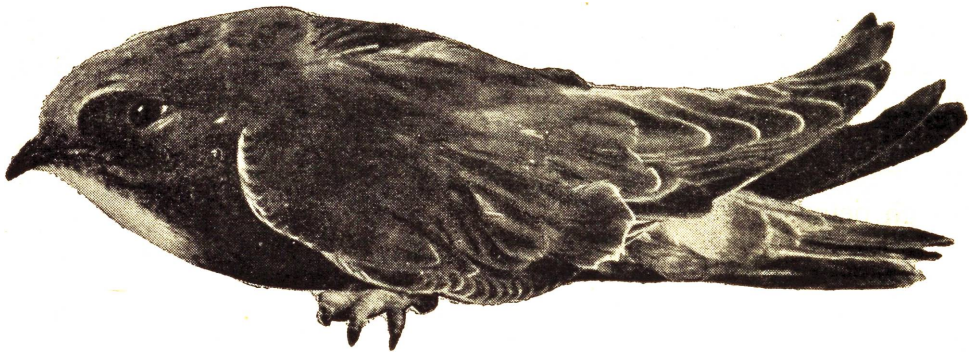
You will be surprised to know that the blue colour of the Blue Jay's feathers is not due to any blue pigment. It is a trick that the light plays on us. This should not surprise us, because we already know that the blue appearance of the sky is also a trick of the light, blue colour of the sky is not due to any pigment, but the effect of colour is produced when light passes through small particles present in the atmosphere. In the same way, the structure of the Blue Jay's feathers is such that light produces a blue effect.

In parrots and bee-eaters, a transparent yellow pigment combines with the blue colour-producing structure of the feathers, and makes them look green.

When there is no pigment, the feathers appear white. Some-

times a ‘freak’ bird, which normally is of a different colour, may be born white. From time to time bird watchers have seen ‘white crows’. This may be due to the non-working or failure of the body machinery, which produces colour. This is known as ‘albinism’, and may occur not only in birds, but in any animal including a human being.





5. Flight

AS MENTIONED EARLIER, insects, bats and birds have wings. All of them can fly. So, the bird's ability to fly is not unique. But none, however, can match the gracefulness of a flying bird. Birds are truly masters of the air. They are more competent fliers than are insects or bats. And, that is not all about the bird's flying ability. A bird can fly in several different ways, and each bird has mastered, at least, one way of flying in which it is supreme.

Birds, like sparrows and babblers, do not fly very high in the

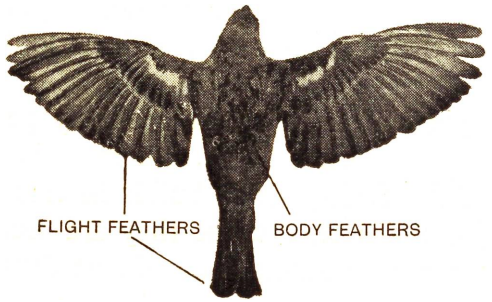


FIG. 3. *Flight feathers and body feathers of a sparrow.*

air. They flap about with their wings, They fly in and out of a bush with ease.

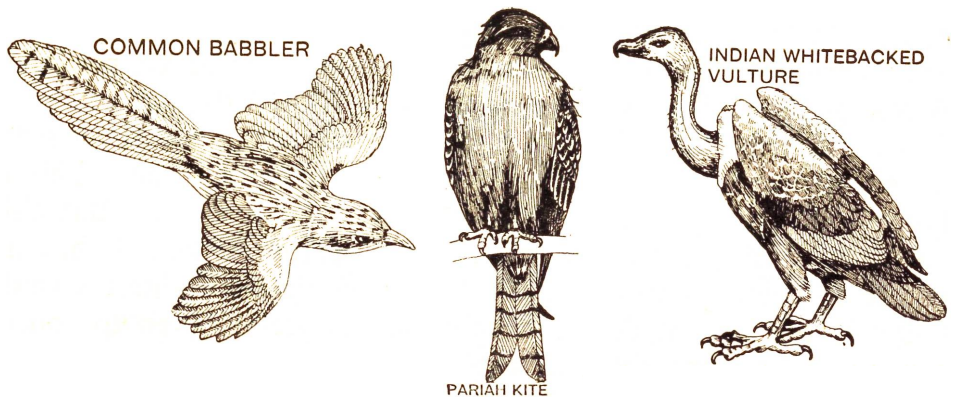


FIG. 4. *Some birds, like sparrows and babblers, do not fly very high. But kites and vultures can fly high up in the sky for hours together.*

On the other hand, vultures and kites are no good for flying among bushes and trees. But, they can, with their out-stretched wings, glide smoothly for hours together high up in the sky. Of

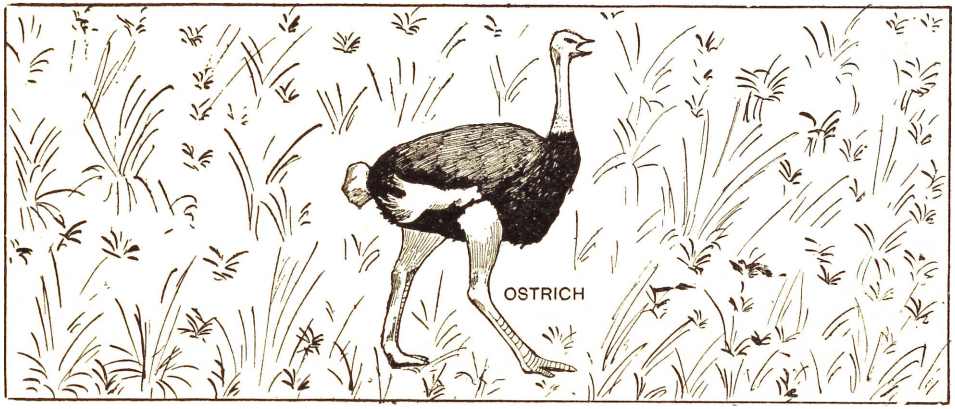
course, they do not fly for mere pleasure. With their keen eyes, from their vantage point high up in the sky, they keep a sharp look on the ground below for food.

If we are to give a prize for flying, a swift would probably get it. Our most common swifts are the House Swift, which builds its nest in old buildings, and the Palm Swift, which builds in trees. Many people think that these swifts are bats, because they are seen moving at dusk and dawn. But, whereas swifts move in at dusk and move out at dawn, bats move out at dusk and move in at dawn.

A swift may go several miles in search of food, and may keep on its wings for as many as six hours or more. Swifts have long-pointed wings, so that they can fly fast. They are among the fastest flying birds, and may achieve a speed of more than 150 km per hour. On the other hand, most of the birds that we see around our houses are slow fliers; they normally fly about 25 to 35 km per hour. A few of them, like swallows, would be a little faster.

It is the irony of Nature that, though efficient in the air, a swift is very clumsy on the ground; it can only miserably flop. This is because of its weak legs, which are unfit for walking. But this disability hardly bothers a swift. As a matter of fact, it has no reason to come on the ground. It captures and eats insects while flying in the air. It does not come to the ground even to collect straw and feathers, which it requires for building its nest. It uses only that material which is floating in the air.

Thus, a swift performs a day's routine entirely in the air. Once it takes off from its nest, it keeps on flying till it returns to the nest.



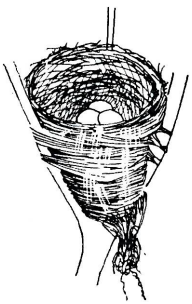
6. *How Do Birds Fly ?*

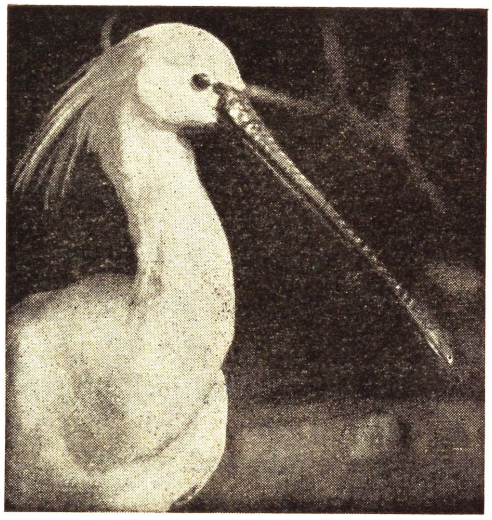
LET US COMPARE a bird to a flying machine. We can understand how it flies, if we have a little knowledge of the man-made machine —the aeroplane. The two important parts of an aeroplane are it 5 wings and propeller. The flat, expanded surface of the wings is necessary to keep the plane up in the air; the propeller, or jets in the jet-planes, create the force to drive the plane through the air.

The wings of a bird, with its long flight feathers, are comparable to the wings and propeller, combined together, of an aeroplane. When the wings of a flying bird move up and down, the outer parts of the wings act as a propeller, and give a forward motion; at the same time, the inner parts of the wings support the bird in the air.

The tail feathers also, when spread out, help the bird to remain up in the air.

Flying ability is very important to birds, because it helps them to move about in search of food, and to get away from their enemies. However, there are a number of birds that cannot fly at all. One of such flightless birds is the ostrich. It is an African bird, which we can see in a zoo. This large bird weighs as much as 120 kg. You can even ride on it if you wish! Its poorly developed wings are useless for flight. Their loss of power of flight is made good by their speed in running on the ground, for which purpose they have long, powerful legs.





7. *What Do Birds Eat ?*

A BIRD, such as the House Crow, would eat almost anything, but that is not so with all the birds. Most of them are finnicky about their food, and each kind of bird usually has its own favourite food.

A bird catches its food with its beak. To handle its food, a bird must have a suitable beak. Very often, by merely examining

the beak of a bird, one can say what type of food the bird would eat.

Some birds, like pigeons and doves, have short, narrow but strong beaks, and they pick up seed grains from the ground. These birds, like all other birds, have no teeth, so the grains are not chewed, but swallowed whole. However, inside the body the grains are ground by a structure, which is like a grinding machine, and is called the gizzard. Nature has thoughtfully provided the seed-eating birds with this structure.

Parakeets have a strong, hooked beak to crack open the shells of the fruits and seeds which they eat. They also use their beaks to cut up their food into smaller pieces.

Swallows and bee-eaters, like swifts, eat insects which they capture while flying. Their wide mouth is lined with bristle-like feathers, and when the mouth is open, it becomes a net in which insects are easily trapped.

Herons and pelicans eat fish and other aquatic animals. The Pond Heron, commonly seen standing hunched up at the edge of a pool, has a long, pointed beak. When a frog or a fish comes within reach, it suddenly extends its long neck and grabs the prey with its beak. The pelican is an expert 'fisherman' with a built-in net. It has a huge beak to capture fish. The elastic skin of its chin and throat make a spacious bag in which the fish are hauled.

FIG. 5. *Swallows catch flying insects for their food.*

Kingfishers also eat fish. The Pied Kingfisher is worth watching while it is fishing. When it is flying over the water, it is, in fact, keeping a look out for fish. When it sees a fish, it stops moving forward and hovers at one place, appearing as if it is aiming at its prey. Then it dives down into the water. On the other hand, the Whitebreasted Kingfisher is not dependent entirely on the water for its food. In addition to fish, it also eats insects and lizards, which the bird may capture far away from the water. Kingfishers normally batter their victim to death on a rock or tree stump, before eating it.

Kites, vultures, hawks, owls and shrikes are flesh eaters, and their strong beak is sharp, pointed and curved to tear at the flesh. The Pariah Kite and the Whitebacked Vulture are common around slaughter houses in our cities. The kite would swoop down on any scrap of food, even in busy street. The vultures collect in large numbers around the dead bodies of cattle, and strip the carcass to bones within an amazingly short time. Thus, both the vulture and the kite are scavengers, and help in keeping our cities and our

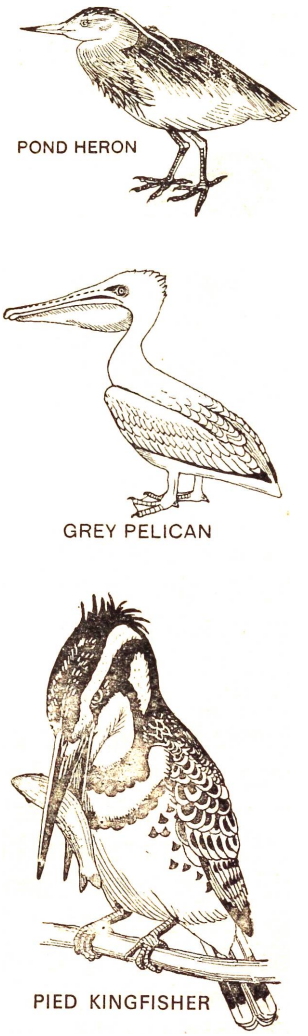
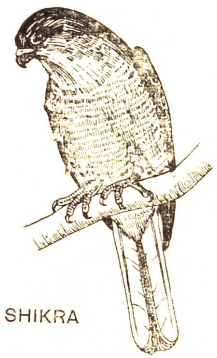


FIG. **6.** *Birds which get their food from water.*

countryside clean. Our most common hawk, the Shikra, captures, on the other hand, only live prey such as mice, squirrels, birds and lizards.



SHIKRA

FIG. 7. *Owls and hawks capture live prey.*

SPOTTED OWLET

Owls, like hawks, capture live prey. But whereas a hawk feeds during the daytime, an owl feeds during the night. An owl's eyes are specially adapted to see in the dark. One of our owls, the Barn Owl, feeds exclusively on mice and rats, and by getting rid of these vermin, the bird helps us considerably. A much smaller owl, the Spotted Owlet, is commonly seen at night. In cities, it perches near street lights, because the light attracts large number of insects on which this owlet feeds.

Shrikes are also known as butcher birds, because they ruthlessly kill large insects, lizards, mice and small birds, even when they have no need for food. They have a peculiar habit of storing the surplus food by pinning it on thorns.

Some birds, like the sunbirds, feed on nectar found in flowers. You can see them in a garden moving from flower to flower. They have a long beak, which they insert in the flower cup to suck up

nectar, using their tube-like tongue as a straw. They also eat insects and pollen of flowers.

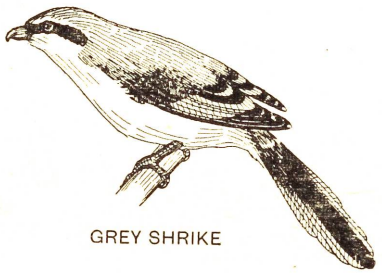


FIG. 8. *Shrikes are known as butcher birds.*

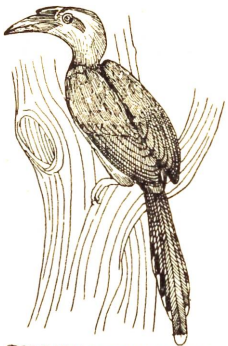
FIG. **9.** *The Barn Owl feeds exclusively on mice and rats.*

Flamingoes and ducks are filter feeders. Their beaks have sieve-like plates. When they take in a mouthful of water and close the beak, the water along with the mud is forced out, leaving the food in the mouth.

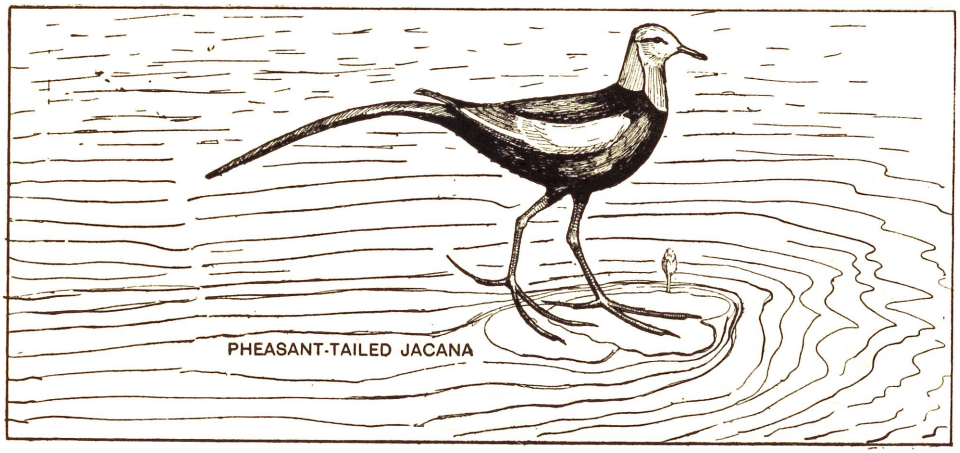
Birds that feed along the shore or in shallow waters have long beaks. With their beak they search in the mud for food items. The Spoonbill, for example, has a spoonshaped beak, with which it rakes up mud for snails and vegetable matter.

A woodpecker makes an ingenious use of its beak. The beak is shaped like a chisel. It is used for making a hole to be used as a nest, in a tree trunk. The beak is also used as a hunting device, for digging out insects hiding in crevices.

FIG. **10.** *Birds which have special types of beaks.*



Some birds have beaks of fantastic shapes. A hornbill is one of such birds. It feeds mainly on fruits, though for a change, it may also eat small animals. There are also other birds which feed on the same things, but they do not have such fantastically shaped beaks; why then should a hornbill have such a huge beak with a crest-like projection? Many scientists have wondered about it, but as yet they have not been able to offer a really good explanation that would suggest a special use of such a beak to the bird.



8. *Feet Of Birds*

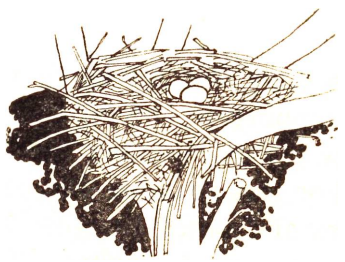
MOST OF THE BIRDS use their feet for perching on the branch of a tree or for walking or hopping on the ground. But there are some birds, for example, ducks, that use their feet for swimming at the surface of the water. For this purpose their feet are suitably modified; the three front toes are joined together by a thin fold of skin called web. Such feet are called webbed feet, and they serve as paddles for swimming.

Like ducks, jacanas also depend on water as the source of their food. If you happen to be near a village pond, you can see these birds walking gracefully on the lily leaves, or on any other floating vegetation in the pond. It is only when you examine the feet of the bird that you realize how it walks about on the floating vegetation, and yet does not sink. Jacana's toes and claws are unusually long, so that when it walks, its weight gets distributed over a large area, and the bird does not sink in water.

Many other birds, similarly, have special types of feet to meet their particular need. Woodpeckers have feet with two toes directed forward and the remaining directed backward. This position of the toes helps the bird in getting a good hold on the bark of a tree. While in search of insects, a woodpecker can even climb vertically along the tree trunk.

Another bird with a peculiar modification of the toes is a swift. This bird has all its toes directed forward. Such toes, with sharp and curved claws, help the bird to cling to the surface of its nest.

The feet of the vultures, kites and hawks are powerful. The claws on their toes are large and curved. Such feet help a bird to paralyse its prey, and carry it off the ground.



9. *Bird Migration*

HAVE YOU NOTICED that a number of birds are not seen in summer, though they are quite common in our neighbourhood during the rest of the year? The Yellow Wagtail and the Grey Wagtail are

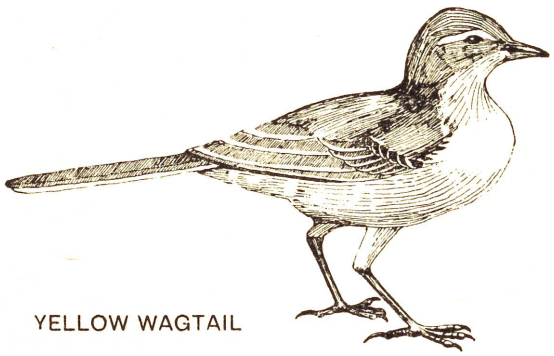


FIG. **11.** *The bird that constantly wags its tail up and down as it moves on the ground.*

so common in winter that you could hardly miss them. They constantly wag their tail up and down, as they move over the ground searching for insects. During summer these wagtails are not to be seen anywhere. Another bird, the Rosy Pastor, is not seen during a part of the summer.

In olden days such disappearance of birds during a part of the year was a mystery to man. In modern times, we came to realise that there are some birds that remain at one place all the year round; they can be said to have only one home. But there are other birds that do not live at one place all through the year. They have what we may call two homes—a summer home and a winter home. The place where they live during summer may be called their summer home. When they are at their summer home, they lay their eggs and raise their young ones. Towards the end of summer, the birds with their young ones leave the summer home. They fly hundreds of kilometres and come to an altogether different place. Here they stay till the approach of the next summer. The second home, where the birds live during winter months, may be called their winter home.

These birds with two homes, thus, make two trips in a year. One trip is from the winter home to the summer home, and the other is the return trip to the winter home. This to and fro movement of the birds between two homes is referred to as migration, and the birds that migrate are called migratory birds.

The Yellow Wagtails start moving to their summer quarters in February. By April, everyone of them has left India. Once they reach their summer home, they start looking for suitable sites for their nests. Before summer is over, they have built their nests, laid eggs and brought up their young ones. After that, they are ready to start for their winter home. They start arriving back in India in August. By October, they have already settled down in various parts of India.

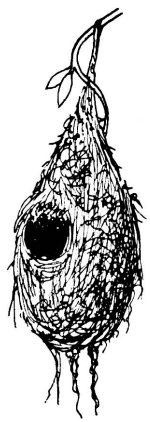
The Rosy Pastor, our other winter visitor, leaves this country around April and comes back in July. In March, as the day of departure to their summer home approaches, they become fatter and fatter. This programme of body building is very important, in view of the long and dangerous journey that they are about to begin.

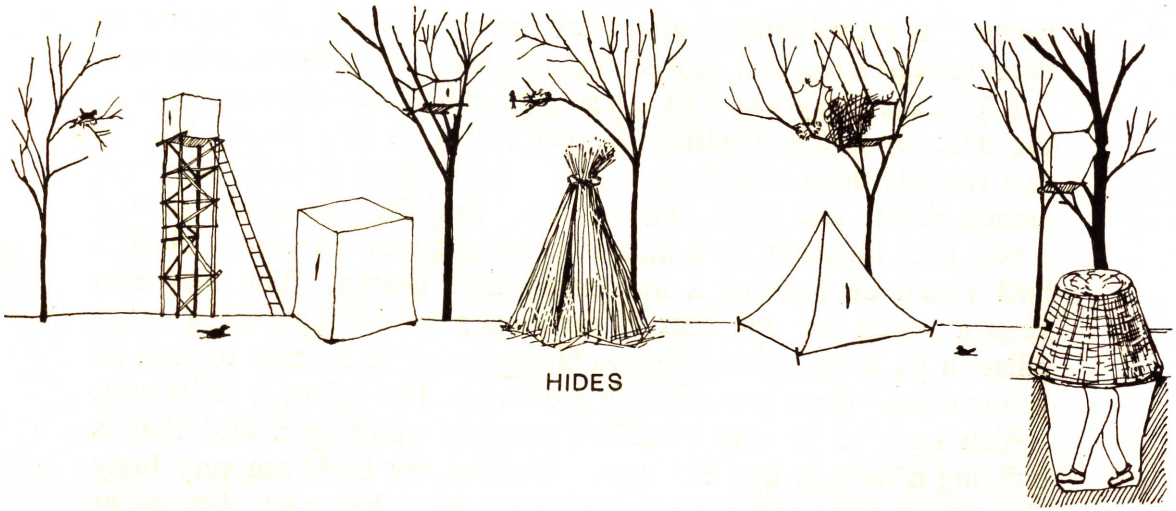
Another change that is noticed in the Rosy Pastor in March is that it appears extremely excited. Every evening thousands and thousands of them collect in suitable places. The sky is full of them, as they fly from tree to tree. Their excited twittering echoes through the area. Only when it gets dark, their excitement stops, and they go to sleep sitting on the branches of trees. If on such a night, you shine your torch up one of these trees, you would find the branches drooping down with the weight of the birds. This scene of excitement of the Rosy Pastor would be repeated on every evening for several days. Then, they start leaving for their summer home, and their numbers start decreasing. Ultimately, one

evening you will find that the birds are not seen in their usual places. All of them have left for their summer home.

Apart from birds, many other animals are known to migrate. You would be surprised to know that some small and delicate animals, like the butterflies, also undertake long migration. However, as the birds are easier to watch, their migration could be very spectacular, and probably the grandest phenomenon to watch.

Due to their mastery over air, birds can undertake very long migrations, which are, however, full of perils. Some birds prefer to travel by night; they rest and feed by day. There are others that travel during the day, and feed from time to time as they travel. Some birds that are passing over oceans have to fly non-stop without food and rest. In bad weather, there may be accidents. Many birds may die, but a great majority usually reaches the destination.





10. Watching Birds Raising Their Families

MOST OF OUR small birds build their nests and raise their families in summer and monsoon. Only birds, such as vultures, kites and hawks raise their families in winter.

It is very fascinating to watch a bird raising a family, because then it is at its best. At that time its feathers are new and sparkling

bright. It actively moves about and appears excited. It might even become aggressive, and fight off any intruder that comes near its nest.

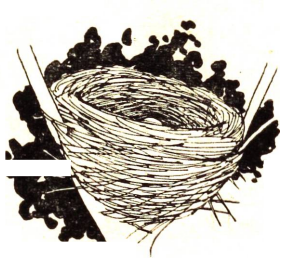
If you are lucky and find a nest, you can watch the occupants of the nest for hours together, by just sitting at one place. So, the first thing to do is to find out a nest. This can be done by searching among bushes and other likely places. But, the easiest way to find a nest is to look out for a bird carrying straw or a feather. Such a bird would be building a nest somewhere nearby. You may also keep a watch for one that is carrying a grass-hopper or a caterpillar in its beak, as this bird would be going to its nest to feed its young ones. Once you see such a bird, you just follow it to its nest.

You have to be very careful if you are watching a bird that is building a nest or has laid eggs. Most of the birds are very fussy about their nests and eggs; if you go too near their nest, they might abandon their half-built nest or even the nest with eggs. Then, later on they might build another nest somewhere else.

Once the chicks are born in a nest, the parents develop a strong attachment to their young ones, and would not normally abandon the nest. Therefore, it is easier to watch birds from a close distance at a nest where the young ones are hatched out, than at a nest which is under construction or which still has eggs. This does not mean that, even if the bird sees you peeping at it from a short distance, it will continue to feed its young ones. If you are standing close to a nest, the birds will keep away. So, if you want to watch the bird from a close distance, you must hide yourself well. This can be very easily done by making for yourself a device known as ‘hide’.

A hide can be made from jute bags, canvas or straw, which can be supported by bamboo poles or sticks cut from the branches of a tree. As a matter of fact, you can make it out of any material that

will hide you, and at the same time will not be very conspicuous. In the hide, you can make a hole facing the nest, and through this hole you can watch or photograph the bird's family.



11. Family Life Of The Indian Robin

LET ME TELL YOU something about the family of the Indian Robin. The male robin is a very handsome bird. The dark plumage on its throat and chest dazzles with a steel bluish hue, as it proudly struts about in our garden. When it tosses its tail up, you can see under the base of the tail a patch of rustly brown feathers.

It has a white patch on each shoulder, which can be seen only if the bird is flying or showing off to the female. The female, in contrast to the male, is a drab bird. It is ashy brown and does not have the white patch.

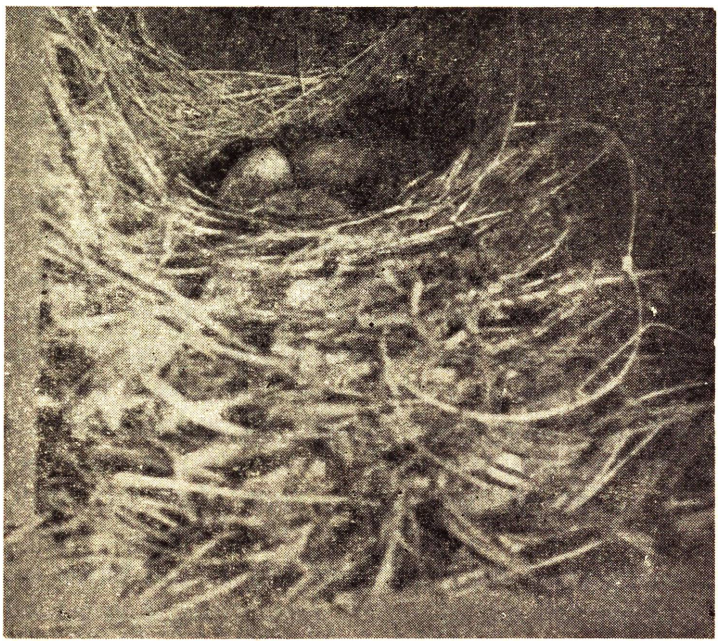


FIG. 13. *Indian Robin's nest with eggs.*

Towards the end of winter, we can see a distinct change coming over the robin. It sings more * often and appears very busy. Actually, this is the time for the robin couple to select a piece of land where they could build their nest and raise their family. Such a piece of land that is selected for nesting is called 'territory'.

The robins do not allow any other robin to come within their

territory. The male tells the whole world about its territorial rights, by singing loudly. It perches high up on a bush or on a rooftop and sings, then it moves to another place in the territory and sings once again. These songs are more common during the early morning and evening, and discourage other robins from trespassing on their territory.

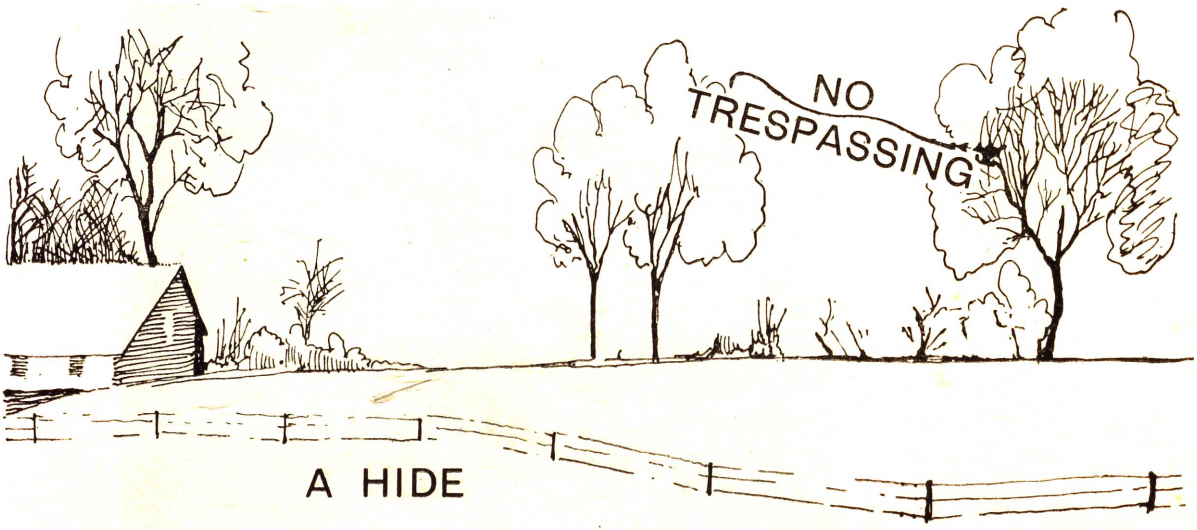


FIG. **12.** *An idea of a bird's territory.*

The robins like to build their nests in holes, either in tree trunks or on earthern banks or in the walls of buildings. They might even build a nest right inside the house, in an empty cardboard box or any other container that is available.

On finding a good place, the nest building begins. It is a pleasure to watch the industrious birds, as they spot a piece of grass, root or

a string piece or a feather, pick it up with the beak, and carry it to the spot where the nest is to be built. Gradually, the pile of these materials increases. On the top of the pile, the birds make a cup-shaped depression, padded exclusively with soft material, such as thin plant fibers, feathers and hair. It takes the birds about five days to complete the nest.

After the nest is complete, the female lays eggs; normally three eggs are laid, but it may lay less than that. Chicks, that is, baby robins, come out of the eggs only if the eggs are kept warm; in other words, the eggs have to be incubated. This work is done by the female, who sits on the eggs to keep them warm. The male not only does not sit on the eggs, but it hardly comes near the nest. However, it is busy doing a very important job—that of keeping intruders away from the territory. With the male standing watch, the female incubates the eggs undisturbed, and the eggs remain safe. The eggs have to be incubated for about 12 days, so that the chicks can come out of them. When the chicks hatch out, the female leaves the nest to go hunting for insects. The male also joins in the hunt for food. Both the male and female feed the chicks with insects.

When the chicks come out of the eggs, they are quite helpless. Their skin is without any feathers, and their eyes are not yet open. However, as soon as the parents land on the nest with the food, the shaking of the nest as well as the parents' call induce the chicks to stretch their head straight up and open the mouth wide. The parents deposit the food in the hungry mouth. As the chicks grow up, the skin gets covered with feathers and their eyes open. Now they can see their parents bringing the food.

The parents, not only feed the young ones, but also keep the nest

FIG. **14.**
The female robin incubating eggs.

clean, and do not allow dirt to collect in the nest. The chicks remain in the nest for about 12 to 14 days. During this period their wings grow, and due to the care taken by the parents, the chicks have grown strong enough to make their first flight and leave the nest. Even after they leave the nest, the chicks are looked after and fed by the parents, because they still cannot fly very well, and do not know how to find their food. But in a few days they learn to pick up food from the ground, and gradually become less dependent on their parents.

12. Nests Of Birds

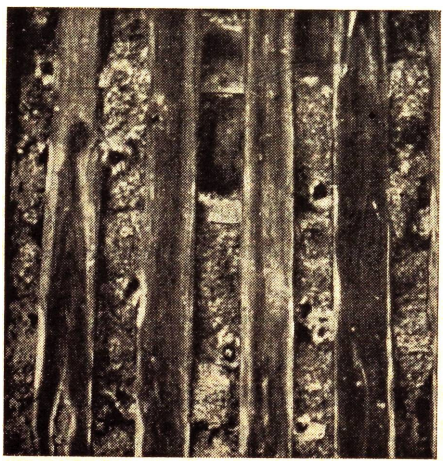
MOST OF THE BIRDS build nests in which they lay eggs and raise their family. We have seen that the robins take great trouble to build a nest. However, there are some birds, for example, lapwings, which do not build a nest. These birds lay their eggs just on the bare ground, or in a shallow depression on the ground.

Birds such as vultures and kites make their nests in trees. They

select a place where a branch forks, and place a large number of twigs on the fork till a platform is made. This platform has to be strong and large enough to support them as well as their chicks. On the top of the platform, they make a depression and line it with soft material to place the eggs.

Birds like woodpeckers and parakeets nest in tree holes. These birds dig out holes in the trees with their powerful beaks. There are also birds, like mynas and owls, which, though they nest in tree holes, do not take the trouble of making their own holes. They build their nests in natural holes, or in holes cut out by other birds. Kingfishers and bee-eaters dig out tunnels in earth banks. The end of the tunnel is wide and forms the chamber where the bird lays its eggs.

Many smaller birds make nests of various shapes, using grass and other plant material. The Red-vented Bulbul builds a cup-shaped nest. Munias and the Rufousbel-lied Babbler build ball-shaped nests with the entrance on one side.



Some birds, like the Paradise Flycatcher and the White-eye, may use cobwebs to tie their nest material. Their nests are cup-shaped.

Sunbirds also use cobwebs for building their pendulum-shaped

FIG. **15.** *Nests of the House Swifts built in the ceiling of a house.*

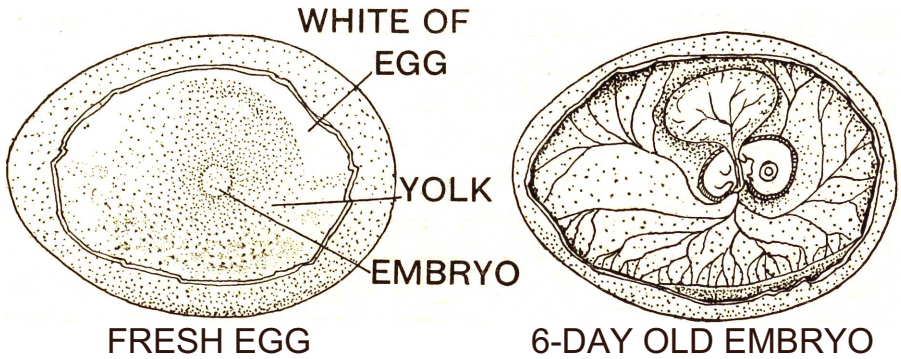
nest. The nest hangs from a tree branch. From the outside it hardly looks like a nest, as it is covered with pieces of bark and dried leaves, and appears very disorderly, but, on the inside its cavity is smooth and lined with silk-cotton fibres.

FIG. **16.** *The Common Weaverbird's nest.*

Swifts and swallows use their saliva as a cement in building their nests. The House Swift builds a bag-shaped nest attached to the ceiling. This nest is made of feathers and straw, glued together with thick strings of saliva, which the bird takes out from its mouth. One kind of swift, found in Assam and some of our neighbouring countries, builds its nest entirely out of saliva. These nests are used by some people to make soup, which is said to be very delicious. Swallows also use saliva in their nests. They mix the saliva with wet mud, which they collect from the border of a water pool.

The nest of the Tailorbird is a fine piece of craftmanship. Large leaves of a plant are stitched together along the edges, to form a funnel. Inside this funnel, soft fibrous material is arranged in the form of a cup.

Of all the nests a weaverbird's nest is considered to be the most complicated. The Common Weaverbird weaves a very intricate nest with grass blades. The entrance of the weaverbird's nest is from below and leads into a vertical tubular passage, which ends in the spherical egg chamber.



13. Eggs Of Birds

BIRDS LAY EGGS in their nests, and incubate them, so that inside the egg the embryo develops into a chick.

Just as we need food to keep alive and grow, the embryo also needs food to grow up into a chick. But, the embryo is imprisoned inside the shell, which is like a closed box, and cannot get food from outside. Nature has thoughtfully packed inside the egg, plenty of food for the embryo. If you open an egg, you can see this food. When you open the freshly laid egg of a hen or of any other bird, you find a spherical mass of yellow or orange colour

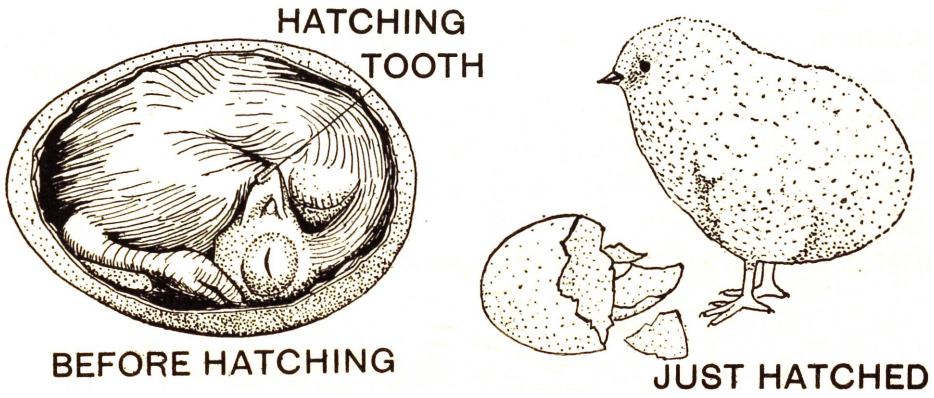
floating in a thick colourless fluid. The yellow rounded mass is called the yolk, and the clear fluid, which becomes white, if you boil the egg, is called the white of the egg. The yolk and the white of the egg make up the food for the embryo.

In a freshly laid egg, the embryo is so small that you cannot easily see it. The embryo slowly grows using up its stored food, and by the time it turns into a chick, all the food is nearly used up.

The other peculiarity of the bird's egg is the shell. The hard shell protects the developing embryo from injury. At the same time, the shell is porous enough to allow the embryo to breathe through it.

The egg shells of many birds contain pigments which give colour to the shell. The colour of the egg may be different in different birds. For example, the eggs of the Jungle Babbler are turquoise blue, whereas those of the Redvented Bulbul are pinkish white, with purplish brown spots. The eggs of lapwings have what may be called protective colouration; they are grey, with dark brown and purple grey spots. Such a colouration merges very well with the bare ground on which the eggs are laid, and makes it difficult for any one to detect the egg, even from a close distance. Such protective colouration is necessary for those eggs which are laid exposed on the ground, because animals, such as the snakes, squirrels, rats and lizards feed on birds' eggs. Even some birds, like the crows and crow-pheasants, feed on the eggs of other birds.

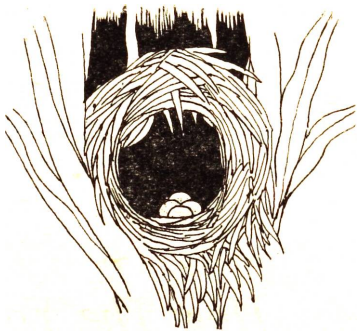
All birds do not have coloured eggs. Birds such as swifts, flamingoes and pelicans have white eggs.



14. How The Young One Comes Out Of The Egg ?

THE PROCESS of emerging out of the egg, by forcing open the egg shell, is the first tough job which the bird baby has to do. This coming out of the egg is called hatching. A day or two before it hatches, the young one starts struggling inside the egg; this itself weakens the shell. Moreover, it also uses a curious structure, with which nature has provided it, to open the egg shell. This structure

is a horny projection on the beak, and is called the hatching tooth. By moving its head up and down, a chick rubs its hatching tooth on the inside of the shell and slightly cracks it. At this stage the chick can be heard faintly pipping within the shell. The crack in the shell widens, and due to a final struggle of the chick, the shell falls apart and the chick is born. The hatching tooth is of no use to the chick after it is born, and it soon disappears.



15. Bird Babies

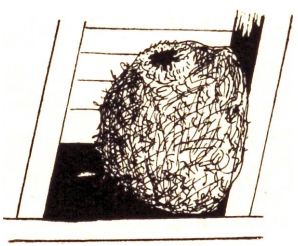
THE BABIES of sparrows, bulbuls and babblers are helpless at the time of their birth. They are almost naked, as they have very few delicate feathers on their body. They are also blind, as their eyes are not yet open. Their legs and wings are too small for them to raise up their body, but the^ can raise up the head and open their mouth to receive food from their parents.

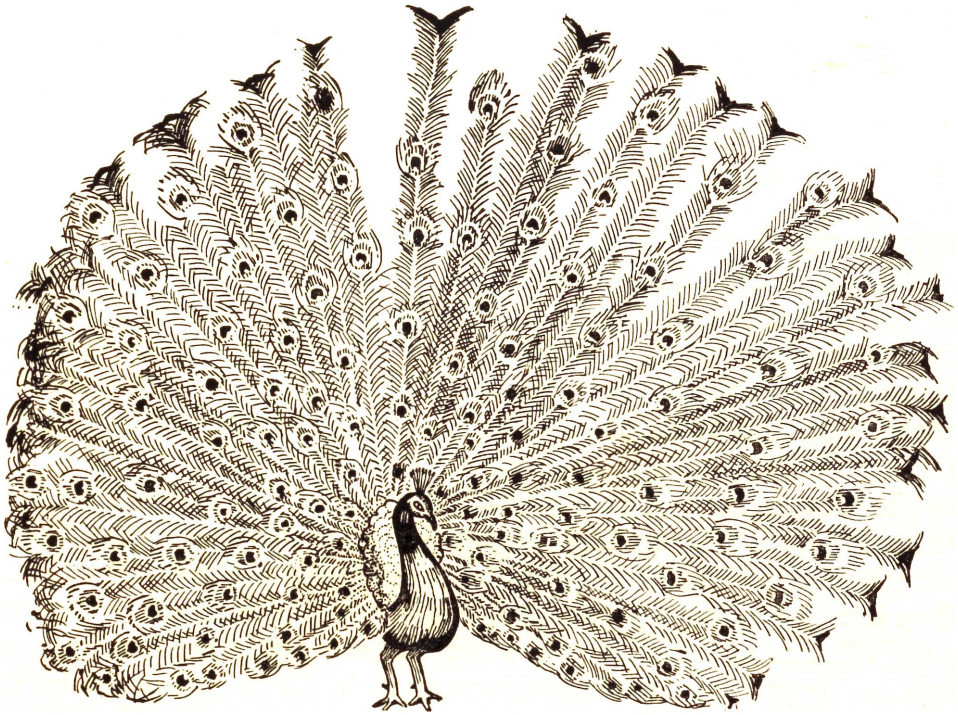
Young ones of certain birds, like lapwings and ducks, are very well-developed when they are born, and can start walking soon after their birth. Their eyes are open and their body is covered with soft, woolly feathers.

The young ones of many birds, that are born helpless, remain in the nest for about a week or two. But the babies of the House Swift remain in the nest for about 40 to 44 days. As long as the babies remain in the nest, the parents feed them and keep them clean and warm.

At the end of their stay in the nest, the young ones make their first flight. A young one that takes off, usually never returns to the nest. Sometimes, before it is really ready to take off, a young one may leave the nest, out of fright when an intruder approaches its nest. Such a young one may not survive for long. Due to this reason, one must avoid approaching a nest in which the young ones are fairly grown up.

Usually, the parents continue to feed the young birds, even after they are out of the nest. Soon they learn to get their own food and become independent.





PEACOCK

16. Our National Bird

YOU PROBABLY KNOW that the peacock is the national bird of India. Do you know why we have a national bird? Well, it is partly due to the activities of an organisation, called the International Council for

Preservation of Birds, that we have a national bird.

The world organisation mentioned above is devoted to the protection of wildlife in general, and birds in particular. In 1960, the organisation met at Tokyo (Japan) and passed a resolution that, as a part of the wildlife preservation programme, every nation should choose one bird as its national bird. Many countries responded to this resolution, and selected their national bird.

The Government of India, in 1963, declared the peacock as our national bird. The peacock, as you know, is the male of the Common Peafowl. The female peafowl is called the peahen. The Common Peafowl is found throughout India. It is also found in Ceylon and Pakistan. One often sees a peacock moving in the company of four or five peahens near rivers, streams or in the fields that are being irrigated. It feeds on tender shoots of plants and animals, such as insects, lizards and snakes. It is due to this habit of killing snakes that it gets the Indian name ‘mayura’, which means ‘killer’.

The choice of the peacock as the national bird is a wise one. There is no other bird as intimately associated with Indian history and culture as the peacock. It has been referred to in our scriptures and folk-lore.

As the national bird, the peacock symbolizes our wildlife. We must never forget that the purpose of selecting a national bird is to focus the attention of our people towards the importance of our rich wildlife. Our wildlife is our heritage that must be conserved and used wisely, as it provides us with recreation, food and many economic products, such as fur and feathers.

Though our wildlife is rich, it is not as rich as it used to be. Due to lack of a policy on the preservation of wildlife, many of our beautiful animals have decreased in numbers. The well-known

FIG. J 7. *The bird that has disappeared in our country.*

example of our negligence is the present fate of our lion. At least, up to the middle of the last century, the lion was very common throughout India. But the lions were killed by hunters in such numbers that now they are found only in the Gir forests, and nowhere else in India.

If we gear our efforts to protect the lion, it might eventually increase in number. The way a number of animals have disappeared from this earth should remind us to continue such conservation work. The Pinkheaded Duck is one of the many animals we have lost. Once upon a time, this duck lived in swamps in the northern and north-eastern parts of our country. In 1935, it was seen for the last time, and after that nobody has seen any Pinkheaded Duck.

By selecting the national bird, we have recognised the importance of our wildlife and stressed our determination to protect it and use it wisely.